

I CLAIM:

1. An apparatus for applying a consistent clamping pressure between a plurality of boards comprising:
  - a) a deck for supporting a plurality of boards, the deck having an upstream end and downstream end;
  - b) a horizontal displacement system operatively connected to the upstream end for applying a downstream force to the plurality of boards, the horizontal displacement system operable between a disengaged position allowing a new board to be positioned adjacent the upstream end and an engaged position where the plurality of boards is advanced towards the downstream end;
  - c) a braking system operatively connected to the downstream end for retarding advancement of the plurality of boards along the deck when the downstream force is below a threshold pressure and for allowing advancement of the plurality of boards if the downstream force exceeds the threshold pressure, the braking system including an upstream pressure system for applying an upstream pressure to the plurality of boards when the horizontal displacement system is moving from the engaged position to the disengaged position; and,
  - d) a one-way clamping system operatively connected to the deck for preventing upstream movement of the plurality of boards when the horizontal displacement system is moving from the engaged position to the disengaged position.
2. A system as in claim 1 wherein the horizontal displacement system includes a horizontal displacement member actuated by at least one hydraulic cylinder .
3. A system as in claim 1 wherein the braking system includes at least one friction plate adjacent the downstream end of the deck, the at least one friction plate for applying a downward pressure

4. A system as in claim 1 wherein the braking system includes a roller and rotary brake.
5. A system as in claim 1 wherein the at least one friction plate is an upper and lower friction plate and the lower friction plate includes rollers allowing upstream and downstream motion of the lower friction plate.
6. A system as in claim 1 wherein each at least one friction plates includes a rubber tread for rotational movement about each friction plate.
7. A system as in claim 1 wherein the upstream pressure system includes at least one compression spring operatively attached to the braking system for applying the upstream pressure.
8. A system as in claim 1 wherein the upstream pressure system includes at least one hydraulic cylinder operatively attached to the braking system for applying the upstream pressure.
9. A system as in claim 1 wherein the upstream pressure system is either upstream or downstream of the braking system.
10. A system as in claim 1 wherein the one-way clamping system includes a plurality of passive dogs biased against the deck.
11. A system as in claim 1 wherein the one-way clamping system includes at least one mechanically actuated clamp, the mechanically actuated clamp responsive to the position of the horizontal displacement system.
12. A system as in claim 1 further comprising a panel press system for providing a flattening pressure against a plurality of boards on the deck.
13. A system as in claim 12 wherein the panel press system is adjacent the upstream end of the deck.

14. A system as in claim 12 wherein the panel press system includes a plurality of rails for contacting the upper surface of the plurality of boards and a pressure bar system transverse to the rails for applying a downward force against the plurality of boards.

5 15. A system as in claim 1 having a longitudinal clamping system operatively connected to the deck upstream of the one-way clamping system, the longitudinal clamping system for applying a longitudinal clamping pressure to a plurality of interlocked and finger-jointed boards.

10 16. A system as in claim 2 wherein the braking system includes at least one friction plate adjacent the downstream end of the deck, the at least one friction plate for applying a downward pressure.

15 17. A system as in claim 2 wherein the at least one friction plate is an upper and lower friction plate and the lower friction plate includes rollers allowing upstream and downstream motion of the lower friction plate.

18. A system as in claim 17 wherein each at least one friction plates includes a rubber tread for rotational movement about each friction plate.

20 19. A system as in claim 18 wherein the upstream pressure system includes at least one compression spring operatively attached to the braking system for applying the upstream pressure.

25 20. A system as in claim 19 wherein the one-way clamping system includes a plurality of passive dogs biased against the deck.

30 21. A system as in claim 19 wherein the one-way clamping system includes at least one mechanically actuated clamp, the mechanically actuated clamp responsive to the position of the horizontal displacement system.

22. A system as in claim 21 further comprising a panel press system for providing a flattening pressure against a plurality of boards on the deck.

23. A system as in claim 22 wherein the panel press system is adjacent the upstream end of the deck.

24. A system as in claim 23 wherein the panel press system includes a plurality of rails for contacting the upper surface of the plurality of boards and a pressure bar system transverse to the rails for applying a downward force against the plurality of boards.

25. A system as in claim 24 having a longitudinal clamping system operatively connected to the deck upstream of the one-way clamping system, the longitudinal clamping system for applying a longitudinal clamping pressure to a plurality of interlocked and finger-jointed boards.

26. A system maintaining a high inter-joint pressure across a plurality of glued boards being continuously assembled on a deck, comprising a downstream pressure system, a braking system, an upstream pressure system and a clamping system operatively connected to the deck.

27. A method of maintaining a high inter-joint pressure between a plurality of boards being assembled into a panel or beam comprising the steps of:

- a) advancing a board across a deck by a horizontal displacement system through a clamping system restricting the upstream movement of the board; and
- b) restricting the downstream movement of the plurality of boards with a braking system having a threshold pressure, the braking system further providing an upstream pressure against the clamping system.

28. A method as in claim 27 wherein the plurality of boards are manufactured from finger-jointed blocks of wood and step a) further comprises applying a longitudinal

clamping pressure to the finger-jointed blocks prior to advancement through the clamping system.